



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,190	10/31/2003	Michael D. Gandrud	P06597US0-5191	3475
34082	7590	05/29/2007		
ZARLEY LAW FIRM P.L.C. CAPITAL SQUARE 400 LOCUST, SUITE 200 DES MOINES, IA 50309-2350			EXAMINER FRANTZ, JESSICA L	
			ART UNIT 3746	PAPER NUMBER
			MAIL DATE 05/29/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/699,190	<b>Applicant(s)</b> GANDRUD, MICHAEL D.	
	<b>Examiner</b> Jessica L. Frantz	<b>Art Unit</b> 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-15 is/are allowed.
- 6) ☒ Claim(s) 16-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/14/2007 has been entered.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the axial and bent axial configurations must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nippert US 2003/0110935 in view of Wassell US 2002/0011358. Nippert teaches the invention substantially as claimed including a positive displacement piston unit 12 comprising a housing 40, a plurality of radial cylinder bores 44 within the housing 40, each bore 44 having a top end being the end associated with passage 52 opposite a bottom end being the end associated with passage 54 with a piston 46 traveling there between, first and second fluid passages 52, 54 connected to the top end and the bottom end of each bore 44 as shown in figure 4. Each fluid passage 52, 54 is associated with an electronically controlled valve element 64, 66 which include actuators 76, 78 that are controlled by a controller 24 and also the device 12 may be operated as either a pump or a motor as discussed in paragraph [0002]. Nippert also teaches an inlet 52 fluidly associated with a first valve 66 and the piston 46 such that when the piston reciprocates, fluid outside the bore 44 passes from the inlet 52 through

the valve 64 to the first fluid passageway 52 and into the bore 44 as shown in figure 4. Nippert further teaches an outlet 54 associated with the second valve 66 such that fluid passes from the bore 44 through the second fluid passage 54 to the second valve 66 to the outlet 54 as shown in figure 4. Nippert fails to teach the following claimed limitations as taught by Wassell: valves 70, 71 (see figure 11) that incorporate electro-energized field generating elements which are electromagnets 92 and rheological fluid (not labeled) disposed within fluid passages 51 wherein the rheological fluid has a viscosity that increases in the presence of a magnetic field see Wassell paragraphs [0041] and [0044]-[0045]. Wassell further teaches in reference to figure 11, the rheological fluid drives the cylinder pistons and wherein the first electro-energized field generating element has a channel 94 formed between an electromagnet 92 and a housing 87 and is in fluid communication with an inlet 93 and valve outlet 95 and when the electromagnet is energized, the rheological fluid solidifies across the channel thereby preventing movement of fluid through the channel. Wassell also teaches a solenoid coil 99 encircling the electromagnet. Wassell teaches the incorporation of magneto-rheological valves for the purpose of controlling pistons 12 of a guidance module 10 see Wassell paragraph [0029]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the valves of Nippert with the valves of Wassell for the purpose of controlling pistons 12 of a guidance module 10 see Wassell paragraph [0029]. In regards to claims 18-19, the combined invention of Nippert in view of Wassell discloses the claimed invention except for the axial and bent axial configurations. While these limitations have not been sufficiently shown in the

Art Unit: 3746

drawings of the instant application, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have arranged the piston cylinders in both axial and bent axial in order to suffice the particular pumping need. Certain configurations are deemed more appropriate than other when dealing with certain sized and/or power outputs and it is obvious to chose the correct one for a specific task at hand. It has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

***Allowable Subject Matter***

5. Claims 1-15 are allowed.

***Response to Arguments***

6. Applicant's arguments, see pages 9-10, filed 5/14/2007, with respect to 1-15 have been fully considered and are persuasive. The rejection of claims 1-15 in view of the new amendments has been withdrawn.

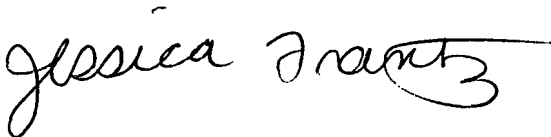
7. In regards to Applicant's assertion that Wassell does not teach the limitations required by new independent claim 16 including a channel being formed between the electromagnet and a housing wherein rheological fluid flows, Examiner kindly directs applicants attention to the rejection of claim 16 as listed above. As discussed above, the Wassell reference does teach a channel 94 between the electromagnet and the housing wherein rheological fluid flows as clearly shown in figure 11 and discussed in Wassell paragraphs [0040-0044].

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica L. Frantz whose telephone number is 571-272-5822. The examiner can normally be reached on Monday through Friday 8:30a.m.-5:00p.m. E.S.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Stashick can be reached on 571-272-4561. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



JF



ANTHONY D. STASHICK  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700